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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,552	01/17/2006	Luigi D'Elia	279164US0XPCT	3871

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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GRAHAM, CHANTEL LORAN

ART UNIT	PAPER NUMBER
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1797

NOTIFICATION DATE	DELIVERY MODE
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03/19/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/551,552	<b>Applicant(s)</b> D'ELIA ET AL.	
	<b>Examiner</b> CHANTEL GRAHAM	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Amendment*

1. The amendment filed 12/3/2009 has been entered and fully considered.
2. Claims 1 and 10 have been amended.
3. Claims 20-24 are new and are fully supported by the disclosure as originally filed.
4. Claims 1 and 3-24 are pending and have been fully considered.

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1 and 3-24 are rejected under 35 USC 103 (a) as being obvious over WESTFALL ET AL. (US PG PUB 20020116868), in combination with KRULL ET AL (US PATENT 6364918).

Hereby referred to as WESTFALL and KRULL.

WESTFALL discloses an aqueous hydrocarbon fuel emulsion (water-in-oil-type) comprised of water, liquid hydrocarbon fuel (including diesel fuel), and an emulsifier; and a process for making the aqueous hydrocarbon fuel emulsion in a batch or a continuous

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process. The emulsifier component may be present in the fuel emulsion in an amount of 0.1% to about 25% by weight and comprises:

- (i) at least one hydrocarbyl-substituted carboxylic acid acylating agent reacted with ammonia or an amine;
- (ii) at least one ionic or nonionic compound having a (HLB) between 1-40;
- (iii) a mixture of (i) and (ii); (iv) a water soluble compound selected from amine salts, ammonium salts, etc.,
- (v) the reaction product of a polyacidic polymer with at least one fuel soluble product made by reacting at least one hydrocarbyl-substituted carboxylic acid acylating agent with ammonia, an amine, a polyamine, alkanol amine, or hydroxy amines;
- (vi) an amino alkylphenol; and
- (vii) the combination of (vi) with (i), (ii), (iii), (iv), (v) or combinations thereof.

See page 1, paragraphs [0009] to [0018]. The examiner is of the position that the emulsifier components of WESTFALL meet the limitations of the emulsifiers set forth in dependent claims 12-16.

WESTFALL teaches in paragraph 81 that additional additives such as antifreeze agents (**anti-freeze additive**) may be added in amounts from about 1% to about 40% (**0.5 to 8%**) by weight to the emulsion, hydrocarbon fuel, emulsifier, water and/or combination thereof. The water used in the aqueous hydrocarbon fuel emulsion includes deionized (**deionized**), demineralized (**demineralized**) and/or combination thereof in amounts of 1% to about 50% water (**quantity of water in the emulsion ranges from 2 to 40%, 3 to 20%, 4 to 10% by weight**) (para 93-95).

The claims differ from WESTFALL by adding an anti-cavitation additive to the fuel emulsion comprising a specific copolymer that has an average molecular weight (Mw) ranging from 700 to 3000. However, such copolymers are known in the art as fuel additives as evidenced by KRULL.

KRULL discloses middle distillate fuel oils (including diesel fuels) containing oil soluble copolymers comprising structural units of (A) from 5 to 95 mol % of an olefinically unsaturated carboxylic acid or derivative of such an acid, (B) from 5 to 95 mol % of an olefinically unsaturated compound, and (C) from 0 to 40 mol % of structural units selected from (meth) acrylates, vinyl esters and olefins. The copolymers act to improve the lubricity of middle distillate fuel and are added to the fuel in an amount of about 0.001 to 2% by weight (column 6, lines 12-28). The copolymers have a mean molecular weight Mw of from 700 to 10,000 g/mol **(an average molecular weight Mw ranging from 700 to 3000)**.

Derivatives of the acid monomer (A) include their anhydrides and esters with alcohols having 1-5 carbon atoms. See column 2, line 43 to column 3, line 27. KRULL teaches that the copolymers are further reacted with a reagent which has at least one -OH group and a further functional group which is capable of reacting with the carboxylic acid or derivative thereof unit (A). KRULL teaches that the binding to the polymer can take place via hydroxyl groups as ester and/or via primary or secondary amino groups in the form of amides, imides and/or ammonium salts. See column 5, lines 35-40. Thus the examiner is of the position that this meets the limitations of the copolymer of claims 1 and 3-8.

Having the prior art references before the inventors at the time the invention was made it would have been obvious to have added the copolymer of KRULL to the fuel water emulsion composition of WESTFALL if its known imparted property was so desired.

WESTFALL provides motivation for the addition of other well known fuel additives to the water-fuel emulsions in paragraphs [0081] and [0163]. Although the property of anti-cavitation is not disclosed in KRULL, fuel additives generally impart more than one property or function to the fuel. It has been held that obviousness is not rebutted by merely recognizing additional advantages or latent properties present in the prior art additive. Further, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

### ***Response to Arguments***

8. Applicant's arguments filed 12/3/2009 have been fully considered but they are not persuasive.

Applicant argues:

The Examiner's explanation that the failure of the prior art to recognize any anti-cavitation properties of Krull's copolymers when added to a hydrocarbon fuel would not undermine a conclusion that it would have been prima facie obvious to a person having ordinary skill in the art to add the same copolymer to Westfall's fuel to improve the lubricity of that hydrocarbon-containing fuel emulsion is erroneous. Westfall's fuel is a water-in-oil fuel emulsion. Krull's fuel is a middle distillate hydrocarbon fuel. It is not surprising that Krull does not recognize any anti-cavitation benefits associated with its copolymers. Anti-cavitation activity relates to and affects water-in-oil emulsions. Krull's fuels are not water-in-oil emulsions. In fact, any water in Krull's fuels would be present in insignificant or contaminant amounts and, as such, would not be present in the form of a stable water-in-oil emulsion.

Examiner respectfully disagrees and maintains the rejection referenced above:

Applicant is correct in that WESTFALL's fuel is a water-in-oil fuel emulsion and KRULL's fuel is a middle distillate hydrocarbon fuel; however WESTFALL provides motivation for the addition of the additives disclosed in WESTFALL to be used in the fuel composition of KRULL and vice versa. WESTFALL discloses in paragraph 81 that the additives may be added directly to the hydrocarbon fuel (which may be diesel fuel disclosed in paragraph 91)

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before the addition of other components such as emulsifiers, water and/or combination thereof. Therefor giving evidence to the combination of WESTFALL diesel fuel and KRULL additives would be stable in combination prior to the addition of other components such as water or emulsifiers (see also par 89-91 and 162-163 of WESTFALL).

Applicant argues:

Moreover, it is not apparent from the teachings in Westfall and/or Krull that copolymers which improve the lubricity of Krull's hydrocarbon fuels would also affect the lubricity of a stable water-in-oil fuel emulsions. To the contrary, Applicant's Specification teaches that its anti-cavitation additives, unlike Krull's lubricity additives, interact with the aqueous phase of the water-in-oil fuel emulsions. In addition, Westfall's emulsifiers are designed for maximum solubility in the hydrocarbon phase of its fuel emulsions. It is not at all clear from Krull's disclosure that its lubricity-improving, oil-soluble copolymers would have any stabilizing affect or other positive interaction with Westfall's stable water-in-oil fuel emulsions or have any capacity to improve the lubricity of water-in-oil fuel emulsions the way they allegedly affect Krull's middle distillate hydrocarbon fuels which do not contain water and are not water-in-oil emulsions.

Examiner respectfully disagrees for the reasons set forth above. Additionally WESTFALL discloses that the additional additives may be added to the water prior to the emulsification step; thereby providing evidence to the stability of KRULL additives in aqueous phase (see rejection above and para 81).

Applicant argues:

Westfall discloses fuel emulsions comprising stabilized water-in-oil fuel emulsions comprising a hydrocarbon fuel (including diesel fuel), water, and 0.1 to 25% by weight of a "fuel-soluble" or "fuel soluble" emulsifier [0100; 0104; 0126; Claim 1 (i) and (iv)]. Applicant's currently amended claims are directed to a fuel comprising an emulsion between water and a liquid hydrocarbon, and 30 ppm to 3% by weight per total weight of the emulsion of an anti-cavitation copolymer additive, i.e., a copolymer additive which prevents the evaporation of water in a water-in-oil fuel emulsion (Spec., p. 3, 1. 16, to p. 4, 1. 15). Applicant's anti-cavitation copolymer additives do not appear to affect the stability of the emulsion itself (Spec., p. 5, 11.2-7), i.e., they are not fuel-soluble emulsifiers of the kind Westfall describes. And, the amount of water in Applicant's emulsion is now required to be 2-40% by weight in currently amended Claim 1 and new Claim 24, 3-20% by weight in currently amended Claim 10, and 4-10% by weight in new Claims 20.

Examiner respectfully disagrees for the reasons set forth above. Additionally WESTFALL discloses that the additional additives may be added to the water prior to the emulsification step; thereby providing evidence to the stability of KRULL additives in aqueous phase (para 81). Also, the water used in the aqueous hydrocarbon fuel emulsion

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includes deionized, demineralized and/or combination thereof in amounts of 1% to about 50% water (para 93-95). Applicant is reminded that having the prior art references before the inventors at the time the invention was made it would have been obvious to have added the copolymer of KRULL to the fuel water emulsion composition of WESTFALL if its known imparted property was so desired. WESTFALL provides motivation for the addition of other well known fuel additives to the water-fuel emulsions in paragraphs [0081] and [0163]. Although the property of anti-cavitation is not disclosed in KRULL, fuel additives generally impart more than one property or function to the fuel. It has been held that obviousness is not rebutted by merely recognizing additional advantages or latent properties present in the prior art additive. Further, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd.Pat. App. & Inter. 1985)

Applicant argues:

Applicant's anti-cavitation copolymer additives comprise a copolymer prepared by copolymerizing 20-80% in moles of an ethylenically unsaturated carboxylic acid monomer containing at least one carboxylic acid group and 80-20% in moles of at least one other ethylenically unsaturated monomer. Applicant's currently amended Claim 1 requires that (1) at least 20% in moles of the carboxylic acid groups in the copolymer is in the form of at least one derivative selected from the group consisting of carboxylate salt, ester, amide and imide derivative of the carboxylic acid groups, and (2) the copolymer has an average molecular weight Mw ranging from 700 to 3000. New Claims 21 and 24 require that (1) 30-90 mole % of the carboxylic acid groups in the copolymer are in the form of at least one derivative selected from the group consisting of carboxylate salt, ester, amide and imide derivatives of the carboxylic acid groups, and (2) the copolymer has an average molecular weight Mw ranging from 700 to 3000. The molecular weight of Westfall's fuel-soluble emulsifiers is much higher.

Examiner respectfully disagrees for the reasons set forth above. Also Applicant is relying on WESTFALL reference alone; however the Examiner has relied on KRULL to teach the copolymer additive (see rejection above), and KRULL teaches that the copolymers have a mean molecular weight Mw of from 700 to 10,000 g/mol (see rejection above). The



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examiner is of the position a reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545,549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968). In addition, "A reference can be used for all its realistically teachings and is not limited to the disclosure in its preferred embodiments" See *In re Van Marter*, 144 USPQ 421.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986); therefore the anti-cavitation copolymer additive has been given its broadest reasonable definition and has been interpreted to include the process and composition that WESTFALL in view of KRULL teaches.

Applicant argues:

Applicant believes that a fair comparison of the composition, properties, and function of the anti-cavitation additives utilized in Applicant's claimed water-in-oil fuel emulsions to the composition, properties, and function of the fuel-soluble, high molecular weight emulsifiers utilized in the aqueous hydrocarbon fuel emulsions Westfall describes shows that Applicant's anti-cavitation additives are not reasonably suggested by Westfall for stabilizing aqueous hydrocarbon fuel emulsions or for any other purpose the art suggests. To the contrary, Westfall teaches away from Applicant's anti-cavitation additives.

Examiner respectfully disagrees for the reasons set forth above. Examiner believes Applicant is arguing the property or function of the WESTFALL additives; however the Examiner has relied on WESTFALL in view of KRULL (see rejection above) and the mere fact that Applicant has recognized additional advantages or latent properties present in the prior art additives, especially when additives generally impart more than one property or

function to the composition, does not provide evidence that the WESTFALL and KRULL references teaches away from Applicant's anti-cavitation additives; and Applicant has not shown evidence to the contrary.

Applicant argues on page 10 paragraph 3 – pg 17 Examiner respectfully disagrees for the reasons set forth above. In addition as Applicant states in the response that Applicant's copolymer is similar to WESTFALL and KRULL would also lead one of ordinary skilled in the art to a prima facie case of obviousness when chemical compounds have very close structural similarities and similar utilities. (Refer to rejection above)

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHANTEL GRAHAM whose telephone number is (571)270-5563. The examiner can normally be reached on M-Th 8:00-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Marcheschi can be reached on 571-272-1374. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CHANTEL GRAHAM/  
Examiner, Art Unit 1797

/Ellen M McAvoy/  
Primary Examiner, Art Unit 1797